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## **Scientific and Science-related Cooperation with the Consultative Parties and the Wider Antarctic Community**



# Scientific and Science-related Cooperation with the Consultative Parties and the Wider Antarctic Community

## ***Background***

The Republic of Korea is conscious of the importance of cooperation with the consultative parties and the spirit of the Antarctic Treaty. This report is written to inform the consultative parties and the wider Antarctic community of the current status and some highlights of the Korean scientific activities in 2016.

## ***Current Status and Research Highlights***

The Antarctic King Sejong station being at the tip of the Antarctic Peninsula remains as the key research site for the Korean Antarctic Program and scientific collaboration. During the 2016-2017 summer season King Sejong welcomed over 100 Korean and international scientists and have supported their research activities. Mostly life science related researches are being conducted in the nearby areas of King Sejong, and in the past year we have We have conducted studies on breeding ecology and foraging behaviour of seabirds including penguin and skua using bio-loggers, identified potential food sources and consumers and assessed primary production and food web structure in lakes and intertidal zones, carried out a series of monitoring efforts in the Specially Protected Area, including a census on the number and distribution of breeding birds and haul-outs of pinnipeds, and have proven that the aqueous solution containing iodine produces a large amount of iodine molecules that can be released into the atmosphere through a unique chemical reaction in ice. In addition, a full renovation for King Sejong is taking place in since November 2016, to enhance research support, capacity and for future cooperation with neighbours and new collaborators. In order to minimize the environmental impact, mitigation measures are being carried out throughout the entire period, in compliance with the Initial Environmental Evaluation (IEE) document for the renovation activities.

The new Antarctic Jang Bogo station has become the base camp for scientific research in the Ross Sea and Northern Victoria Land area for the Korean Antarctic program. During the summer season over 80 science personnel from multiple disciplines have visited Jang Bogo and participated in land-based to ocean-going field expeditions in the nearby areas. Last year, an airborne GPR exploration was conducted for the development of the Korea Route, to ensure the safe traveling over the Nansen glacier, which is the most dangerous section of the inland route. Browning Pass and most of the Nansen Ice shelf were discovered to be relatively safe with less risk of crevasse. However, precautions are called for as there were many lakes formed by meltwater throughout the area.

## ***International Cooperation***

The Korean Antarctic program values international cooperation and has pursued both collaborative research and logistic support for the past several years. As a result, there are a number of scientists from foreign Antarctic programs annually, who are continuously making use of our research infrastructure and are cooperating in a range of research and logistic activities.

The Korean program cooperated with the New Zealand and Chilean program as we use both Christchurch and Punta Arenas as the gateway into the Antarctic, and with the Italian program for logistical support in reaching Jang Bogo and Terra Nova Bay in the Ross Sea sector. International cooperation in scientific research also has been steadily progressing. Together with international researchers, we have studied the tidal deformation and melting of the Nansen Ice Shelf, conducted studies utilizing Vertical Incidence Pulse Incoherent Radar, a previous neutron monitor at McMurdo Station, and GPS / TEC scintillation monitor

The Korean program will continue to collaborate with the Consultative Parties and will continue to support the relatively new members of the Antarctic community or those temporary facing difficulties. During the Antarctic summer season, from January to February this year, we have supported and cooperated with 23 international scientists who have visited King Sejong and Jang Bogo station.

Though the Korean Antarctic program is faced with a challenge to run two stations that are separated by a wide distance, we will converge our efforts to generate significant outcomes from both stations and our research icebreaker for the good of the global community and continue to foster our good relations with the Consultative Parties.

In addition to the above collaborative efforts, the Korean program continued the Asian Polar Science Fellowship program in 2017. The program was initiated in 2015 in an effort to promote research collaboration and networking opportunities among Asian scientists, in particular for the future generation of polar researchers. Seven early career and established polar scientists from Japan, Malaysia and Vietnam were selected as awardees for 2017.